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EX PARTE OR LATE FILED

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December 17, 1998

By Hand Delivery

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
The Portals TW-A325  
445 12th Street, SW  
Washington, DC 20554

RECEIVED  
DEC 17 1998  
FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Re: 1998 Biennial Regulatory Review -- Amendment of Part 18 of the  
Commission's Rules to Update Regulations for RF Lighting Devices  
ET Docket No. 98-42

Dear Ms. Salas:

Pursuant to Section 1.1206(a)(2) of the Commission's Rules, and on behalf of  
Fusion Lighting Corporation, this letter is to report oral and written ex parte  
communications in the above-reference proceeding.

On December 16, 1998, Dan Tessler, Ellen Ranard and Jim Proctor of Fusion  
Lighting and I met with Karen Gulick of Commissioner Tristani's office and later  
with Julius Knapp and Karen Rackley, of the Office of Engineering and  
Technology.

The purpose of the meeting was to provide rebuttal evidence to materials provided  
by various Part 15 device manufacturers on the theoretical in-band interference  
issues associated with 2.45 GHz RF lighting. Information presented at the meeting  
is enclosed herewith.

Very truly yours,

  
Terry G. Mahn

/seg  
Enclosure/Original & Copy

No. of Copies rec'd 0+1  
List ABCDE

cc: Mitchell Lazarus [w/encl.]  
James E. Proctor, Fusion Lighting [w/o encl.]  
Ellen Ranard, Esq., Fusion Lighting [w/o encl.]

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WASHINGTON, DC

# **MISCONCEPTIONS ABOUT 2.45 GHz RF LIGHTING IN *EX PARTE* FILING OF WIRELESS LAN MANUFACTURERS DOCKET ET 98-42**

## **"RF Lighting Proponents Have Declined or Refused to Share Data"**

- Fusion Lighting is under no legal or regulatory obligation to test for in-band emissions
- Fusion was never asked by wireless LAN manufacturers for in-band test data; Fusion was asked, on short notice, to do joint testing
- Fusion products have been available on the market for several years for LAN manufacturers to test
- Fusion provided the FCC Labs with a sample RF lighting device in 1996 that was tested for in-band emissions

# **MISCONCEPTIONS ABOUT 2.45 GHz RF LIGHTING IN *EX PARTE* FILING OF WIRELESS LAN MANUFACTURERS DOCKET ET 98-42**

## **"Severe and Widespread Interference Will Occur From RF Lighting"**

- *Ex Parte* data was based on worst case RF safety limits which have no applicability to RF interference
- *Ex Parte* data assumed 8 watts of radiation; in fact, the Fusion Lamp radiates only 50 milliwatts
- Fusion lamps sold in Europe are 20 dB below IEC/CISPR Publication 15 limits for ISM band lighting (100 dBuV/m)
- Fusion lamps are CE-marked and have been on EU market for several years with no reports of interference

# **MISCONCEPTIONS ABOUT 2.45 GHz RF LIGHTING IN *EX PARTE* FILING OF WIRELESS LAN MANUFACTURERS DOCKET ET 98-42**

***Ex Parte* Proposal Will "Shield 98% of Emissions Passing 95% of Light  
for Pennies Per Unit"**

- Proposal implies Fusion is an uncaring RF designer
- Projected RF attenuation (98%) is a theoretical value that assumes perfect conductivity of the wire mesh
- Proposal assumes a wire diameter of .003"; no known wire of such dimension can be fabricated from a material with perfect conductivity at 2.45 GHz -- certainly not at "pennies per unit"

# **MISCONCEPTIONS ABOUT 2.45 GHz RF LIGHTING IN *EX PARTE* FILING OF WIRELESS LAN MANUFACTURERS DOCKET ET 98-42**

## **Proposal Will "Shield 98% of Emissions Passing 95% of Light for Pennies Per Unit"**

- Fusion invests considerable resources in RF shielding on the assumption that any lamp which causes interference to a 2.45 GHz LAN systems will be refused installation or returned by the customer
- Fusion already implements a secondary RF shield in the cover glass on all of its lamps which outperforms the proposed solution both optically and in terms of RF attenuation
- Fusion's RF shield costs \$12 per lamp

**MISCONCEPTIONS ABOUT 2.45 GHz RF  
LIGHTING IN *EX PARTE* FILING OF  
WIRELESS LAN MANUFACTURERS  
DOCKET ET 98-42**

**"Allowing RF Lighting to Proliferate in U.S. Without In-Band Limits  
Effectively Disrupts International Usage of the 2.45 GHz Band"**

- The 2.45 GHz band is harmonized internationally for ISM priority
- Unlicensed use of the 2.45 GHz band for LAN devices is non-harmonized outside the U.S.

**MISCONCEPTIONS ABOUT 2.45 GHz RF  
LIGHTING IN *EX PARTE* FILING OF  
WIRELESS LAN MANUFACTURERS  
DOCKET ET 98-42**

**"Other Part 18 Devices Are Used Individually Whereas Lighting Devices  
Are Installed In Multiple Units Per Site"**

- Microwave ovens are installed in multiple units per site in tens of thousands of restaurant and food outlets throughout the world

**MISCONCEPTIONS ABOUT 2.45 GHz RF  
LIGHTING IN *EX PARTE* FILING OF  
WIRELESS LAN MANUFACTURERS  
DOCKET ET 98-42**

**"FCC Requested Comments on Whether It May Be Necessary To  
Establish In-Band Limits"**

- Docket 98-42 requested comment ONLY on licensed services (MSS) in the upper portion of the 2.45 GHz band
- Docket 98-42 invited no comment on Part 15 interference issues

# **MISCONCEPTIONS ABOUT 2.45 GHz RF LIGHTING IN *EX PARTE* FILING OF WIRELESS LAN MANUFACTURERS DOCKET ET 98-42**

## **"FCC Invited The Part 15 Industry To Develop Equipment Using The 2.45 GHz ISM Band"**

- In 1985 (Docket 81-413 - spread spectrum), the FCC refused to adopt higher limits for Part 15 because of the "danger" that:

"steady encroachment on [the ISM] bands by [such] services will eventually lead to petitions from these other users for protection from interference from ISM devices."

# **MISCONCEPTIONS ABOUT 2.45 GHz RF LIGHTING IN *EX PARTE* FILING OF WIRELESS LAN MANUFACTURERS DOCKET ET 98-42**

## **"FCC Should Consider Input on Part 15 Spread Spectrum Devices When Authorizing New Types of Part 18 Devices"**

- In 1997 (Docket 96-8 - spread spectrum) the FCC stated:

The manufacturers and operators of spread spectrum transmitters are reminded that the operation of Part 15 devices is subject to the conditions that any received interference, including interference from ISM operations, must be accepted and that harmful interference may not be cause to other radio services.

## 2.45 GHz BAND LIMITS

<b><u>Device Type</u></b>	<b><u>Limits</u></b>	<b><u>Rule</u></b>
RF Lighting and ISM	None	18.301 CISPR 11
<b>Wireless LAN</b>	<b>4 Watts EIRP</b>	<b>15.247</b>
Field Disturbance Sensors	500 mV/m	15.245
International RF Lighting	333 mV/m	CISPR 15
All Other Part 15	50 mV/m	15.249
<b>Wireless LAN Proposal for U.S. RF Lighting</b>	<b>1 mV/m</b>	